

**ABSTRACT**

[0036] A substrate having a catalytic surface thereon characterized as a coating of metal oxide and noble metal particles in the nominal diameter size distribution range of < 3 microns, and more particularly < 1 micron, is produced by thermal spraying a mixture of large size particles (e.g., in a nominal size distribution range of > 10 micrometers) of hydroxides, carbonates or nitrates of the metals: cerium, aluminum, tin, manganese, copper, cobalt, nickel, praseodymium or terbium particles; and hydroxides, carbonates or nitrates of the noble metals: ruthenium, rhodium, palladium, silver, iridium, platinum and gold onto the substrate. The coating adheres to the surface and provides desirable catalyst properties.